physiologist, Professor Rudolph Wagner, I consider it due to the Royal Society and to myself to call to the Society's remembrance the fact, that, in the memoir above referred to as having been laid before them in 1835, the spot in question is not only pointed out and particularly delineated, but its physiological importance hinted at.

The laying of a paper before a Society is an act of publication. With the communication of my paper to the Royal Society in 1835, the publication of Professor Wagner's paper in Müller's Archiv was *contemporaneous* merely.

It is true, that though Professor Wagner's observations were only first published in Müller's Archiv for 1835, there is a note by the editor, saying that the paper was received by him in 1834; but it is also true,—and of this, were it necessary, proof could be easily adduced,—that my paper was written also in 1834.

In conclusion, I beg to apologize to the Royal Society for obtruding on their notice what may appear matter rather of personal than general interest.

3.—Description of the Electro-magnetic Clock. By C. Wheatstone, Esq., F.R.S.

The object of the apparatus forming the subject of this communication, is stated by the author to be that of enabling a single clock to indicate exactly the same time in as many different places, distant from each other, as may be required. Thus, in an astronomical observatory, every room may be furnished with an instrument, simple in its construction, and therefore little liable to derangement, and of trifling cost, which shall indicate the time, and beat dead seconds audibly, with the same precision as the standard astronomical clock with which it is connected; thus obviating the necessity of having several clocks, and diminishing the trouble of winding up and regulating them separately. In like manner, in public offices and large establishments, one good clock will serve the purpose of indicating the precise time in every part of the building where it may be required, and an accuracy ensured which it would be difficult to obtain by independent clocks, even putting the difference of cost out of consideration. Other cases in which the invention might be advantageously employed were also mentioned. In the electro-magnetic clock, which was exhibited in action in the Apartments of the Society, all the parts employed in a clock for maintaining and regulating the power are entirely dispensed with. It consists simply of a face with its second, minute and hour hands, and of a train of wheels which communicate motion from the arbor of the second's hand to that of the hour hand, in the same manner as in an ordinary clock train; a small electro-magnet is caused to act upon a peculiarly constructed wheel (scarcely capable of being described without a figure) placed on the second's arbor, in such manner that whenever the temporary magnetism is either produced or destroyed, the wheel, and consequently the second's hand, advances a sixtieth part of its revolution. It is obvious, then, that if an electric current can be alternately established and arrested, each resumption and cessation

lasting for a second, the instrument now described, although unprovided with any internal maintaining or regulating power, would perform all the usual functions of a perfect clock. The manner in which this apparatus is applied to the clocks, so that the movements of the hands of both may be perfectly simultaneous, is the following. On the axis which carries the scape-wheel of the primary clock a small disc of brass is fixed, which is first divided on its circumference into sixty equal parts; each alternate division is then cut out and filled with a piece of wood, so that the circumference consists of thirty regular alternations of wood and metal. An extremely light brass spring, which is screwed to a block of ivory or hard wood, and which has no connexion with the metallic parts of the clock, rests by its free end on the circumference of the disc. A copper wire is fastened to the fixed end of the spring, and proceeds to one end of the wire of the electro-magnet; while another wire attached to the clock-frame is continued until it joins the other end of that of the same electro-magnet. A constant voltaic battery, consisting of a few elements of very small dimensions, is interposed in any part of the circuit. By this arrangement the circuit is periodically made and broken, in consequence of the spring resting for one second on a metal division, and the next second on a wooden division. The circuit may be extended to any length; and any number of electro-magnetic instruments may be thus brought into sympathetic action with the standard clock. It is only necessary to observe, that the force of the battery and the proportion between the resistances of the electro-magnetic coils and those of the other parts of the circuit, must, in order to produce the maximum effect with the least expenditure of power, be varied to suit each particular case.

In the concluding part of the paper the author points out several other and very different methods of effecting the same purpose; and in particular one in which Faraday's magneto-electric currents are employed, instead of the current produced by a voltaic battery: he also describes a modification of the sympathetic instrument, calculated to enable it to act at great distances with a weaker electric current than if it were constructed on the plan first described.

November 30, 1840.

At the Anniversary Meeting, the Marquis of Northampton, President, in the Chair,

Lieut.-Colonel William Henry Sykes, on the part of the Auditors of the Treasurer's Accounts, reported that the total receipts during the last year, inclusive of a balance of 1808*l.* 9*s.* 7*d.*, carried from the account of the preceding year, amounted to 5725*l.* 8*s.* 10*d.*: that the total payments in the same period amounted to 4787*l.* 9*s.* 3*d.*, leaving a balance in the hands of the Treasurer of 937*l.* 19*s.* 7*d.*

The Thanks of the Meeting were given to the Auditors for the trouble they had taken in examining the Treasurer's Accounts.